

# Hazardous Waste

## What Is Hazardous Waste?

Many of the appliances, products, and materials used in everyday life are manufactured using processes that create hazardous waste. From the paint on your walls, to the components of your car, to the shingles on your house, it is likely that when these products were made, some hazardous waste was generated. Hazardous wastes are substances that exhibit one or more of the following characteristics:

- Toxicity—harmful or fatal when ingested or absorbed.
- Ignitability—creates fire under certain conditions or spontaneously combusts.
- Corrosivity—contains acids or bases that can corrode metal.
- Reactivity—is unstable under “normal” conditions and can cause explosions, toxic fumes, or vapors when mixed with water.

Hazardous waste is created by a variety of different industries, such as petroleum refining and pesticide, chemical, ink, paint, and paper manufacturing. It also is created by the activities of certain smaller businesses found in many communities, such as dry cleaners, vehicle maintenance shops, vocational schools, and photoprocessing stores. In addition, hazardous waste is created when businesses or facilities dispose of certain unused products.

Hazardous waste is an inevitable product of a thriving industrial society. It is important to be aware that the choices consumers make when selecting products, services, and materials have hidden environmental effects. Consumers also should realize that the management of hazardous waste is regulated by law and that facilities that produce, transport, or dispose of it must follow very specific rules to minimize environmental and human health problems. The primary law that

## Key Points

- Hazardous waste can be produced in the manufacturing process of many common products people use every day, as well as many common services.
- To protect human health and the environment, hazardous waste is regulated from the time it is produced to the time it is disposed of.

governs the proper management of hazardous waste is known as the Resource Conservation and Recovery Act (RCRA).

## How Do We Manage Hazardous Waste?

The RCRA regulations cover all aspects of hazardous waste—from the time it is generated at a factory or plant until the time it is discarded. This is known as “cradle to grave.” This regulatory system includes many detailed rules that require hazardous waste to be tracked as it



## "Hazardous Waste" Versus "Household Hazardous Waste"

"Hazardous waste" is regulated by EPA. Businesses, institutions, or other facilities (sometimes including schools) that generate it must comply with certain rules regarding generation, management, transportation, and disposal.

When individuals dispose of household products from their home that contain hazardous ingredients, such as pesticides, cleaners, batteries, or used oil, they create what is known as household hazardous waste. Individuals usually produce much less hazardous waste than businesses and other facilities, and they are not regulated by EPA. Even so, many communities require or prefer that household hazardous waste is handled separately from the regular garbage to prevent any potential risks to the environment or human health.

When disposing of household hazardous waste from your home, remember the following:

- Sharing leftover household products is a great way for people to use all of a product and avoid disposal. If you cannot share or donate leftover products, check with your local environmental or solid waste agency to see if your community has a facility that collects household hazardous wastes year-round or offers opportunities for exchanging products with other residents.
- If your community doesn't have a collection program for household hazardous waste, contact your local environmental or solid waste agency to see if there are any designated days in your area for collecting these materials. On such days, qualified professionals collect household hazardous waste at a central location to ensure safe management and disposal.
- If your community has neither a permanent collection site nor a special collection day, you might be able to drop off certain products, such as batteries, paint, or automotive supplies, at local businesses for recycling or proper disposal. Call your local environmental or solid waste agency or Chamber of Commerce for information.
- Some communities allow disposal of household hazardous waste in trash as a last resort. Call your local environmental or solid waste agency for instructions on proper disposal. Be sure to read the product label for disposal directions to reduce the risk of products exploding, igniting, leaking, mixing with other chemicals, or posing other hazards on the way to a disposal facility. Even empty containers of household hazardous waste can pose hazards due to residue.

moves from place to place; one of the rules requires the use of a tracking paper known as a "manifest." This paper must travel with the waste wherever it goes (e.g., wherever it is stored, shipped, recycled, or disposed of).

Depending on how much waste a facility generates, it is regulated differently; bigger facilities that produce a large amount of hazardous waste each month have more rules than those that produce a small amount of waste.

After a company or factory generates hazardous waste, the waste must be packaged and labeled in special containers, and it must be transported

by a regulated hazardous transportation company in special packages with specific labels. These trucks often can be identified on the highway by multicolored placards and symbols that indicate the type of hazardous waste they carry. The Department of Transportation is responsible for regulating these trucks.

Hazardous waste is usually transported to a facility that treats, stores, and/or disposes of it. Most hazardous waste must be specially treated with certain processes to alter its hazardous composition before it can safely be recovered, reused, or disposed of. Sometimes waste is stored temporarily in a regulated unit. When the waste is

ultimately disposed of, it is transported either to a landfill or special combustion facility (see [Teacher Fact Sheets](#) titled [Landfills](#) on page 155 and [Combustion](#) on page 159). Combustion facilities must take special precautions to prevent air pollution, and they must ensure that only appropriate wastes are burned.

Sometimes hazardous waste is transported to a facility that recycles hazardous waste. Certain hazardous wastes can be recycled and used again. For example, many solvents can be recovered, some metals can be reclaimed, and certain fuels can be re-blended. Hazardous waste recycling is regulated under RCRA to ensure the protection of human health and the environment.

To keep track of all of the facilities that treat, store, or dispose of hazardous waste and ensure that they follow the rules, EPA and many states have a permitting system. Each company must obtain a permit, which tells companies what they are allowed and not allowed to do. Inspectors check these facilities regularly by reviewing company records, observing operating procedures, and sometimes collecting hazardous waste samples. For further tracking purposes, EPA also requires all companies that generate hazardous waste to register and obtain an EPA identification number.

## What Are the Benefits of Hazardous Waste Management?

Before RCRA took effect in 1970, companies could—and did—dispose of hazardous waste in rivers, streams, and other inappropriate places. By enforcing strict rules about the way waste is handled, EPA and other agencies can better control the effects of hazardous waste on the environment and human health. These controls, while not always perfect, allow the industrial production on which we all depend to continue in as safe a manner as possible.

In addition, EPA has made waste minimization practices and pollution prevention activities key requirements for companies that produce hazardous waste. Any company that creates a

## Hazardous Waste Facts

- In 1997, companies produced nearly 40.7 million tons of hazardous waste.
- More than 20,000 large facilities generated hazardous waste in 1997.
- Many hazardous wastes can be generated in schools, such as solvents from cleaning, chemicals from chemistry labs, fluorescent light bulbs, computer monitors, and chemical residues from woodshops.

(Source: EPA, 1997, 2000)



certain amount of hazardous waste each month must sign a statement indicating that it has a program in place to reduce both the amount and toxicity of its hazardous waste. These companies also must indicate that they have chosen a method of hazardous waste treatment, storage, or disposal that minimizes the present and future threat to human health and the environment.

It can be difficult for individuals to identify companies that have taken substantial measures to minimize hazardous waste and prevent pollution, and thus, it is not always possible to lend support for these activities by patronizing those companies. When information of this sort is available, however, consumer demand can make a difference.



## What Are the Challenges of Hazardous Waste Management?

Just as people and communities generally do not want municipal solid waste facilities in their neighborhoods, they often do not want hazardous waste facilities near their homes and schools (the NIMBY mentality). When new hazardous waste generation or treatment facilities are sited near communities, the public can become involved in the process, but it can be a challenge for companies and communities to achieve mutually acceptable solutions.

The RCRA regulations allow the public to have an opportunity to participate in decisions about hazardous waste management. Through public meetings and other open forums, people can express their concerns about a new facility.

### Additional Information Resources:

Visit the following Web sites for more information on hazardous waste:

- U.S. Environmental Protection Agency (EPA): <[www.epa.gov](http://www.epa.gov)>
- U.S. EPA Office of Solid Waste site on hazardous waste:  
<[www.epa.gov/epaoswer/osw/hazwaste.htm](http://www.epa.gov/epaoswer/osw/hazwaste.htm)>

To order the following additional documents on hazardous waste, call EPA toll-free at 800 424-9346 (TDD 800 553-7672) or look on the EPA Web site <[www.epa.gov/epaoswer/osw/publicat.htm](http://www.epa.gov/epaoswer/osw/publicat.htm)>.

- *The RCRA Public Participation Manual* (EPA530-R-96-007)
- *HAZ-ED: Classroom Activities for Understanding Hazardous Waste* (EPA540-K-95-005)
- *RCRA Orientation Manual: 1998 Edition* (EPA530-R-98-004)
- *RCRA: Reducing Risk From Waste* (EPA530-K-97-004)